540,073

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
8 July 2004 (08.07.2004)

PCT

(10) International Publication Number
WO 2004/056941 A1

(51) International Patent Classification[7]: C10B 49/00

(21) International Application Number:
PCT/EP2003/013501

(22) International Filing Date: 1 December 2003 (01.12.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
102 60 734.6 23 December 2002 (23.12.2002) DE

(71) Applicant *(for all designated States except US)*: **OUTOKUMPU OYJ** [FI/FI]; Riihitontuntie 7, FIN-02200 Espoo (FI).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **ORTH, Andreas** [DE/DE]; Obere Römerhofstrasse 132, 61381 Friedrichsdorf (DE). **HIRSCH, Martin** [DE/DE]; Am Vogelschutz 5, 61381 Friedrichsdorf (DE). **WEBER, Peter** [DE/FI]; Kuninkaanlahdentie 6C, FIN-02160 Espoo (FI).

(74) Agent: **KEIL & SCHAAFHAUSEN**; Cronstettenstrasse 66, 60322 Frankfurt am Main (DE).

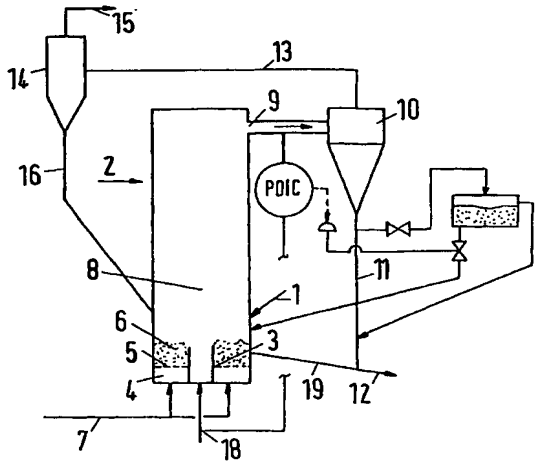
(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(regional)*: ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD AND PLANT FOR PRODUCING LOW-TEMPERATURE COKE



(57) Abstract: The present invention relates to a method and a plant for producing low15 temperature coke, in which granular coal and possibly further solids are heated to a temperature of 700 to 1050°C in a fluidized-bed reactor (2) by means of an oxygen-containing gas. To improve the utilization of energy it is proposed to introduce a first gas or gas mixture from below through at least one gas supply tube (3) into a mixing chamber region (8) of the reactor (2), the gas supply tube (3) being at least partly surrounded by a stationary annular fluidized bed (6) which is fluidized by supplying fluidizing gas. The gas velocities of the first gas or gas mixture and of the fluidizing gas for the annular fluidized bed (6) are adjusted such that the Particle-Froude-Numbers in the gas supply tube (3) are between 1 and 100, in the annular fluidized bed (6) between 0.02 and 2 and in the 25 mixing chamber (8) between 0.3 and 30.

WO 2004/056941 A1